

## ABSTRACT

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A fiber optic connector system for connecting at least one optical fiber cable mounted near the edge of a planar substrate to a backplane, each optical fiber cable including a plurality of optical fibers and a terminating ferrule, the longitudinal orientation of the optical fibers within the terminating ferrule defining a longitudinal axis and a forward direction, the ferrule having a first longitudinal range of motion  $x_1$  and a ferrule spring element having a longitudinal ferrule spring force  $f_n$ . The optical connector system includes a substrate housing assembly and a backplane housing assembly. The substrate housing assembly is designed to be mounted on the planar substrate and includes at least one ferrule receiving cavity for receiving the optical fiber ferrule, and a substrate housing assembly spring. The substrate housing assembly has a longitudinal freedom of motion with respect to the substrate, the housing assembly spring controlling movement of the substrate housing assembly along the longitudinal axis and having a longitudinal spring force  $h$ , wherein

$$h > \sum_i^n f_n$$

The backplane housing assembly defines at least one longitudinal receiving cavity, the receiving cavity having a frontal opening along the first surface of the backplane member and a rear opening along the second surface of the backplane member. A frontal door covers the frontal opening and a rear door covers the rear opening.